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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ORTIZ RODRIGUEZ, CARLOS R	
ART UNIT	**PAPER NUMBER**
2125	16

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application	Applicant(s)	
	09/888,055	JAYARAM ET AL.	
	Examiner	Art Unit	
	Carlos Ortiz-Rodriguez	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23 and 32-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23 and 32-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/17/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 and 3-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato et al U.S. Patent No. 5,999,185.

With respect to claim 1 and 6-8 Kato et al discloses a method for providing a virtual environment for simulating the arrangement of a plurality of parts into an assembly, comprising: creating a model in a design environment for each part, each model having a geometry that corresponds to a part (object), (see col.2, lines 65-66 and col.3, line 1); translating each model into a virtual part in the virtual environment (virtual space), (see col. 1, lines 24-25), the design environment being integrated with the virtual environment (see col.1, lines 29-31); and enabling each virtual part to be positioned in an assembly within the virtual environment, wherein the positioning of each virtual part enables a constrained motion simulation to be performed for the arrangement of the plurality of parts into the assembly, wherein the constrained motion simulation limits the simulated motion of at least one virtual part to an allowed direction. Also translating a constraint information set of the plurality of parts from a parametric computer aided system to the virtual environment. Wherein the constraint information set comprises

multiple constraint values and the constraint information set is used to define kinematic motions of the virtual parts (see col.1, lines 26-29 also see col. 18 lines 58-62).

Kato et al. also discloses controlling the motion simulation when a variable of force is greater than a predetermined value(see col 2 lines 5-7); obtaining data representing one or more physical properties and determining a variable representative of force(see col 6 lines 49-52 and col 16 lines 28-37). Furthermore, the limitation regarding the data representing one or more physical properties dynamically linked to the model in the design environment is implicitly disclosed by Kato et al. (col. 4 lines 59-65).

Regarding claims 3-5 and 9, Kato additionally discloses the method comprising: receiving a user controlled command by a virtual reality peripheral device (data glove) for arranging of the plurality of parts into the assembly (see col.1, lines 46-50) wherein the virtual environment is formed by a generation of three-dimensional views (see col.1, lines 24-27).

The method further comprising, providing a menu display in the virtual environment, the menu display configured to receive commands from a user by the use of a virtual reality peripheral device (see col.15, lines 5-8) and translating a geometry information set of the plurality of parts from a parametric computer aided system to the virtual environment (see col. 21, lines 31-34).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2,19,20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al U.S. Patent No. 5,999,185 in view of Lection et al U.S. Patent No. 6,091,410.

With respect to claim 2, Kato et al discloses the method of base claims 1 as outlined above and regarding claims 19 and 23 Kato et al additionally discloses a virtual assembly design environment system communicatively connected the parametric computer aided drawing system; program code for modeling interactivity between a hand and a part and for simulating the arrangement of a plurality of parts into an assembly in a virtual environment (see Fig 3 element 18), which when executed, perform the steps of: creating a model in a design environment for each part, each model having a geometry that corresponds to a part(object) (see col.2, lines 65-66 and col.3, lines 1); translating each model into a virtual part in the virtual environment(virtual space) (see col. 1, lines 24-25), the design environment being integrated with the virtual environment(see col. 1, lines 29-31); and enabling each virtual part to be positioned in the virtual environment, the positioning of each virtual part enables a simulation to be performed for the arranging of the plurality of parts into the assembly(see col. 1, lines 26-29 also see col. 18, lines 58-62). The program code further performs the step of providing a menu display in the virtual environment, the menu display configured to receive commands from a user (see

col.15, lines 5-8). Kato et al. also discloses controlling the motion simulation when a variable of force is greater than a predetermined value(see col 2 lines 5-7); obtaining data representing one or more physical properties and determining a variable representative of force(see col 6 lines 49-52 and col 16 lines 28-37). Furthermore, the limitation regarding the data representing one or more physical properties dynamically linked to the model in the design environment is implicitly disclosed by Kato et al. (col. 4 lines 59-65).

With respect to claim 2,19,20 and 22 Kato does not disclose modification of simulations enabling another simulation to be performed. Kato also does not teach a system having an avatar.

However reference Lection et al discloses, a method comprising: enabling the simulation to be modified, a modification enabling another simulation to be performed, and when the modification causes a change in the virtual part, causing the corresponding model to automatically include the change to the virtual part (see col. 5, lines 4-8).

Lection also discloses a system for providing a virtual environment, the system comprising: a parametric computer aided drawing system having an avatar communicatively connected the parametric computer aided drawing system (see col. 4, lines 18-20). The avatar includes one or more virtual reality peripheral devices for generating electronic signals that dictate the movement of a user (see col. 1, lines 47-51).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Kato's invention to include an avatar that corresponds to the user.

One of ordinary skill in the art would have been motivated to do this modification

because it is common to associate the user with a character object in the virtual world as suggested by Lection et al.

5. Claim 10-18,32,34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al U.S. Patent No. 5,999,185 in view of Robertson et al. U.S. Patent No. 5,513,303.

Regarding claims 10-18 Kato et al discloses a method for processing constraint information set for limiting the motion of a part associated with the constraint information set, comprising: comparing the part constraint information set with a predetermined constraint information set; and limiting the motion of the part to only move about an axis, if the predetermined constraint information set dictates a limitation about an axis coordinate(see col. 14, lines 26-37).

Regarding claims 32,34-36 Kato discloses a method for providing a virtual environment for simulating the arrangement of a plurality of parts into an assembly, comprising: creating a model in a design environment for each part, each model having a geometry that corresponds to a part (object) (see col. 2, lines 65-66 and col. 3, line 1); translating each model into a virtual part in the virtual environment, the design environment being integrated with the virtual environment (virtual space)(see col. 1, lines 24-25); enabling each virtual part to be positioned in an assembly within the virtual environment, wherein the positioning of each virtual part enables a simulation to be performed for the arrangement of the plurality of parts into the assembly, wherein tile

simulation processes constraint information for limiting the motion of at least one virtual part associated with the constraint information (see col. 1, lines 26-29 also see col. 18, lines 58-62); limiting the motion of the virtual part associated with the constraint information to only move in a direction defined in the predetermined constraint information(col. 14, lines 26-37). Wherein the virtual environment is formed by a generation of three-dimensional views (see col.1, lines 24-27). Further comprising, providing a menu display in the virtual environment, the menu display configured to receive commands from a user by the use of a virtual reality peripheral device (see col.15, lines 5-8). Kato et al. also discloses controlling the motion simulation when a variable of force is greater than a predetermined value(see col 2 lines 5-7); obtaining data representing one or more physical properties and determining a variable representative of force(see col 6 lines 49-52 and col 16 lines 28-37); and a data representative of an acceleration(see col 30 lines 17).

Regarding claims 10-18 and 32 Kato reference does not clearly disclose comparing the constraint information with a predetermined constraint information set, and also does not disclose constraint information sets.

However Robertson discloses a method for processing a constraint information set for limiting the motion of a part associated with the constraint information set, comprising (see Fig.8 element 202): comparing the constraint information set with a predetermined constraint information set; and limiting the motion of the part to only move about an axis, if the predetermined constraint information set dictates a limitation about an axis coordinate. Also a method for processing a constraint information set for

limiting the motion of a part associated with the constraint information set, comprising: comparing the constraint information set with a predetermined constraint information set; and limiting the motion of the part to only move about a plane, if the predetermined constraint information set dictates a limitation about a plane (see Fig 8).

Robertson additionally discloses a method for processing multiple constraint information sets for simulating the moment of a first and second part in a computer simulated virtual environment, wherein a first constraint information set is associated with the first part, and wherein a second constraint information set is associated with the second part, the method comprising: determining the presence of a predetermined type of movement between the first and second parts; and associating the first and second constraint information sets, if there is a presence of a predetermined type of movement between the first and second parts(see col.10, lines 10-20).

The method comprising: determining the presence of redundant data in the first and second constraint information sets; and determining the presence of a predetermined type of movement between the first and second coordinate indicator, if the first and second constraint information sets do not contain redundant information. The first and second constraint information sets define an axis and a plane. The predetermined type of movement includes a first and second constraint information each define a first and second axis, wherein the first and second axis are parallel with respect to each other. Also the predetermined type of movement includes a first and second constraint information each define a first and second plane, wherein the first and second planes are not parallel with respect to each other. Wherein associating the first and second constraint

information sets includes snapping the first part with the second part (see col. 10, lines 20-24).

Robertson further discloses comparing the constraint information with a predetermined constraint information set (see col. 9, lines 51-59).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Kato's invention to include a step where constraint information sets dictate limitations regarding the motion of parts.

One of ordinary skill in the art would have been motivated to do this modification because it is necessary in a virtual reality environment to establish constraints that define different axis and planes to ensure object position as suggested by Robertson.

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al U.S. Patent No. 5,999,185 in view of Lection et al U.S. Patent No. 6,091,410 and further in view of Zimmerman et al U.S. Patent No. 4,988,981.

With respect to claim 21 Kato et al and Lection et al discloses the method of base claims 19 as outlined above.

But, Kato in combination with Zimmerman fail to teach a database containing sequence information.

However Zimmerman discloses a system comprising a database containing information pertaining to trajectory and sequence information for each part(see Zimmerman col. 2 lines 36-39).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Kato et al and Lection et al invention to include a database containing information pertaining information for each part.

One of ordinary skill in the art would have been motivated to do this modification because it is well known in the area of three dimensional modeling and virtual reality that information related to the three dimensional model, are stored in a database as suggested by Zimmerman.

7. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al U.S. Patent No. 5,999,185 in view of Robertson et al. U.S. Patent No. 5,513,303 and further in view of Lection et al U.S. Patent No. 6,091,410.

Kato et al and Robertson et al disclose the method of base claim 32 as outlined above.

Kato and Robertson do not clearly disclose modification of simulations enabling another simulation to be performed.

However Lection discloses the method of Claim 32, further comprising, enabling the simulation to be modified, a modification enabling another simulation to be performed. and when the modification causes a change in the virtual part, causing the corresponding model to automatically include the change to the virtual part (see col. 5, lines 4-8).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Kato et al and Robertson et al invention to include a step where a modification to a simulation enables another simulation to be performed.

One of ordinary skill in the art would have been motivated to include such a step because in order to move objects and avatars to different positions such modifications are necessary as suggested by Lection et al.

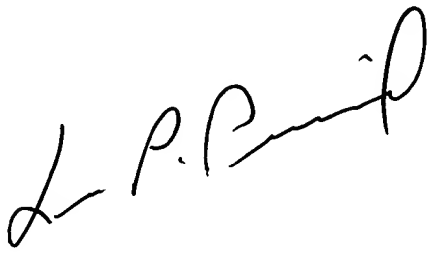
Response to Arguments

Applicant's arguments with respect to claims 1-23 and 32-36 have been considered but are moot in view of the new ground(s) of rejection necessitated by the amendment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is (703)305-8009. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (703)308-0538. The central official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.



Carlos Ortiz-Rodriguez

Patent Examiner

Art Unit 2125

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July 8, 2004